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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,877	07/21/2003	Shariar Motakef	23681-013 DIV	5499
30623	7590	03/09/2004	EXAMINER	
MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C. ONE FINANCIAL CENTER BOSTON, MA 02111			PELHAM, JOSEPH MOORE	
			ART UNIT	PAPER NUMBER
			3742	

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/623,877

Applicant(s)

MOTAKEF ET AL.

Examiner

Joseph M Pelham

Art Unit

3742

[Handwritten signature]

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

The instant application is identified by applicant as a "divisional" of parent application 09/910,287, when in fact it appears to be a continuation. This should be corrected.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-39 are rejected under the judicially created doctrine of double patenting over claims 1-25 of U. S. Patent No. 6624390 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

Claims 1-39 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 6624390. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are copies of the original claims in the parent case.

Claim Rejections - 35 USC § 112

Claims 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claims 10-12 recite the limitation "directions of highest" and "directions of lowest thermal conductivity." There is insufficient antecedent basis for this limitation in the claim since it a directional dependence has not been established, and thermal conductivity is ordinarily isotropic.

Claim Rejections - 35 USC § 103

Claims 1-5, 7-9, 14, 16, 17, 19, 20, 21, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the acknowledged prior art in view of U.S. Patent 3033968 to Julie.

The acknowledged prior art, at pages 2-3 of the instant specification, discloses the problems, such as plastic deformation, associated with non-uniform heating in crystal annealing furnaces. The acknowledged prior art does not explicitly disclose a thermally conductive inner housing encased within and in contact with a thermally insulative outer housing, both housings formed of either carbon or graphite, an axi-symmetric furnace interior volume, control means to prevent plastic deformation by maintaining shear stress below $0.5e^{(990/T)}$ MPa, the thermally insulative outer housing encased within another thermally conductive housing which is displaced from the thermally insulative outer housing, or a heating element outside the thermally insulative outer housing.

Referring to Figures 1 and 7, column 2, lines 42-52, and column 5, lines 3-21, Julie teaches that a thermally conductive inner housing (2, 62) encased within and in contact with a thermally insulative outer housing (3, 63), and a heating element (5, 64) outside the thermally insulative outer housing results in excellent chamber heating uniformity. Julie discloses control means (Figure 8) to maintain heating uniformity. The examiner notes that carbon or graphite have long been utilized as furnace housing materials, and would therefore have been considered as a matter of course and chosen strictly in accord with workpiece and process parameters, as would the desirability of an axi-symmetric furnace interior volume. It would have been obvious to adapt the housing structure of Julie, insofar as it teaches the relative thermal conductivities of the housings, to a crystal annealing furnace since Julie teaches such to enhance heating uniformity.

Moreover, the control arrangement of Julie would appear to effectively maintain the heating uniformity for which it was intended, and hence would appear inherently to prevent plastic deformation by maintaining shear stress below $0.5e^{(990/T)}$ MPa; and another thermally conductive housing displaced from the thermally insulative outer housing would have been obvious since such is the conventional form of a furnace exterior, which among other benefits avails to protect the furnace.

Allowable Subject Matter

Claims 6, 15, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Claims 10-12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art cited on the PTO FORM 892, but not applied, is pertinent to the claimed invention. Applicant is urged to consider all cited prior art when replying to this action.

Any inquiry concerning communications from the Examiner should be directed to Joseph Pelham at (703) 308-1709; fax: 703-872-9302 (before final), 703-872-9303 (after final), 703-872-9301 (customer service).

A handwritten signature in black ink, appearing to read 'J. Pelham', with a large, stylized initial 'J'.

Joseph Pelham
Primary Patent Examiner
Art Unit 3742

JMP
3/8/04